Clean Water State Revolving Fund FY12 Green Project Reserve
- Interim -

Fernwood Sewer & Water District FY12 Wastewater System Upgrade Project

SRF Loan# WW1208

$688,859

Interim Green Project Reserve Justification

Business Case GPR Documentation

1. RENOVATION OF GRAVITY WASTEWATER COLLECTION SYSTEM EXPERIENCING EXCESSIVE I/I (Energy Efficiency). Business Case GPR per 3.5-4: *I/I correction projects that save energy from pumping and are cost effective* ($255,000)

Approved by the State of Idaho SRF Loan Program
July, 2013

1. Renovation of Gravity Wastewater Collection System[1]

Summary

- Repair of the District's gravity wastewater collection system to reduce excessive inflow and infiltration (I/I).
- Potential relocation or improvements to an existing lift station.
- Estimated loan amount = $688,859
- Estimated energy efficient (green) portion of loan = 37% ($255,000)

Background

- The gravity collection system built in 1982 consisting of PVC gravity pipe and precast concrete manholes was poorly constructed. The system currently experiences peak flows 6 times its average daily flow due to excessive amounts of I/I. This I/I results in sanitary sewer overflows, excessive runtimes at the lift stations, higher chemical usage and permit violations at the wastewater treatment plant (WWTP).
- Rainfall and high groundwater levels in the study area typically occur annually in the months of March to June and September to November.
- During these wet weather periods Fernwood's lift station pumps up to 120,000 gpd resulting in 22 to 24 hour daily pump runtimes.
- The average daily flow during the dry weather months is 30,000 gpd resulting in 4 hour daily pump runtimes.

Results

- Planning and installation of approximately 30 to 50 manhole repairs consisting of interior pressure grouting, interior lining and/or raising and sealing of manhole frame and covers. Anticipated Cost = $155,000.
- Planning and installation of approximately 1,000 feet of sewer main and 4 manholes to replace 4 long service lines potentially allowing inflow into the sewer system. Anticipated Cost = $100,000.
- Wet weather average daily flow rates after repairs and new construction are anticipated to be up to 60,000 gpd as compared to current wet weather average daily flows of approximately 120,000 gpd.
- Lift station pumping costs will be at least 50% lower by eliminating I/I. Manhole repairs and sewer main extension will also reduce flow & increase treatment plant capacity.

Conclusion

- Repairing manholes and installing new sewer main would result in a reduction of I/I by at least 50% during the wet weather months and approximately 25% annually.
- Reducing system I/I by 50% results in a corresponding reduction in wastewater system pumping costs; combined with a concurrent reduction in overall wastewater treatment costs, the proposed gravity wastewater line replacement project results in at least 55% during the wet weather months and approximately 30% annually.
- Reducing overall annual pumping costs by 30% is cost effective (>20% reduction over existing costs).
- **GPR Costs**: Repairing Manholes and Sewer Main Installation = $255,000.
- **GPR Justification**: The prioritized repair of manholes and installation of new sewer main by the District as recommended in the Capital Improvement Plan is GPR-eligible by a Business Case per Section 3.5-4 (Energy Efficient): *I/I correction projects that save energy from pumping and are cost effective.*

[1] Fernwood Phase 1A Preliminary Engineering Report, Mountain Waterworks, November, 2012